

CONSTRUCTION ENGINEERING (CONE)

Construction Engineering Graduate Courses

CONE 816 WOOD/CONTEMPORARY MATERIALS DESIGN (3 credits)

Design of structural timber, beams, columns, and connections. Introduction to applicable design philosophies and codes. Overview of materials design. Masonry, aluminum, and contemporary materials such as plastics and fiber reinforced systems and composite material groups. Design considerations, cost and constructability analysis. (Cross-listed with CONE 416)

Prerequisite(s): CIVE 341

CONE 817 FORMWORK SYSTEMS (3 credits)

Design of structural timber, beams, columns, and connections. Introduction to applicable design philosophies and codes. Overview of materials design, masonry, aluminum, and contemporary materials such as plastics and fiber reinforced systems and composite material groups. Design considerations, cost and constructability analysis. (Cross-listed with CONE 417)

Prerequisite(s): CONE 416; Pre/Co-req.: CIVE 441

CONE 821 CONSTRUCTION RISK ASSESSMENT AND MANAGEMENT (3 credits)

The overall process of hazards risk management (risk identification, risk analysis, risk assessment, risk communication), risk based decision making and risk mitigation. Classification of building stock, defining vulnerability, risk assessment methods, assessing economic losses and cost benefit analysis. Case studies will be used to demonstrate the application of risk management principles/techniques in practice.

Prerequisite(s): STAT 3800. Not open to non-degree graduate students.

CONE 850 SUSTAINABLE CONSTRUCTION (3 credits)

Sustainable construction and its application to the green building industry. Topics include: the LEED certification process, sustainable building site management, efficient wastewater applications, optimizing energy performance, indoor environmental issues, performance measurement/verification, recycled content and certified renewable materials. (Cross-listed with CONE 450)

CONE 859 INTRODUCTION TO BUILDING INFORMATION MODELING (3 credits)

This course instructs CAD users on the effective use of Building Information Model (BIM) for integration of design, document and construction estimate. Topics include: model-based 3D design, file formats, interoperability, and MEP modeling. (Cross-listed with CONE 459)

Prerequisite(s): CNST 112, or Graduate standing in AREN, CIVE, CNST or CONE.

CONE 866 HEAVY AND/OR CIVIL ESTIMATING (3 credits)

Estimating techniques and strategies for heavy and/or civil construction. Unit pricing, heavy and civil construction takeoffs and estimating, equipment analysis, overhead cost and allocations, estimating software and government contracts. (Cross-listed with CONE 466).

Prerequisite(s): CONE 319 and CONE 378 and CONE 485

CONE 876 PROJECT BUDGETS AND CONTROLS (3 credits)

The basic systems related to revenues and expenses associated with record keeping of construction contracts. Managerial accounting related to planning and control of construction projects. (Cross-listed with CONE 476, CNST 476).

CONE 881 HIGHWAY & BRIDGE CONSTRUCTION (3 credits)

The methods and equipment required in the construction of roads and bridges. Methods and equipment necessary for roads and bridges. Substructure and superstructures, precast and cast-in-place segments, and standard and specialized equipment. (Cross-listed with CONE 481)

Prerequisite(s): CONE 319 or CNST 241

CONE 882 HEAVY AND/OR CIVIL CONSTRUCTION (3 credits)

History, theory, methods, and management principles of planning and executing heavy and/or civil projects. Emerging and new equipment capabilities. Economical use of equipment and management of costs associated with production. (Cross-listed with CNST 482, CNST 882, CONE 482).

Prerequisite(s): CNST 379. Not open to non-degree graduate students.

CONE 883 SUPPORT OF EXCAVATION (3 credits)

The design and placement of excavation supports according to OSHA requirements and industry standards. A variety of routine to moderately complex support systems. Open excavations, sheet piling and cofferdams. Soil mechanics, lateral loads, hydrology, and pumping methods. (Cross-listed with CONE 483)

CONE 885 CONSTRUCTION PLANNING, SCHEDULING, AND CONTROLS (3 credits)

Planning and scheduling a project using the critical path methods (CPM) with computer applications. Project pre-planning, logic networks, precedence diagrams, time estimates, critical path, float time, crash programs, scheduling, short interval schedules, pull planning, and monitoring project activities. (Cross-listed with CNST 485, CNST 885, CONE 485)

Prerequisite(s): CNST 378. Not open to non-degree graduate students.

CONE 895 GRADUATE INTERNSHIP (3 credits)

Open only to Construction Management graduate students. Participation in a full-time summer internship with an approved Construction Engineering or Construction Management related entity. Includes weekly assignments and a final presentation that are designed to create interaction between the Construction entity and the intern, and associated with the business aspects of the entity. General topics include Business Plans, Marketing, Finance and Budgets, Contracts, Legal Issues and Professionalism. (Cross-listed with CNST 895)

Prerequisite(s): Permission. Not open to non-degree graduate students.

CONE 898 SPECIAL TOPICS IN CONSTRUCTION ENGINEERING (1-6 credits)

Individual and small group investigation of special topics in construction engineering. A signed student-instructor learning contact is required. Topics vary.

Prerequisite(s): Master of engineering in construction or related discipline and permission. Not open to non-degree graduate Students.

CONE 960 PROFESSIONAL PRACTICE (0 credits)

CONE 0960 is required of CONE majors prior to graduation. The work experience must be pre-approved by the faculty adviser in the CONE department. Work experience in a construction related work area.

Prerequisite(s): Senior standing

CONE 999 DOCTORAL DISSERTATION (1-24 credits)

None provided

Prerequisite(s): Admission to doctoral degree program and permission of supervisory committee chair. Not open to nondegree students.